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PROCEEDINGS AT THE MEETINGS OF THE PHYSICAL SOCIETY

SESSION 1947-48

24 *September* 1947

Extraordinary General Meeting, at Imperial College, London S.W.7. The President, Professor G. I. Finch, was in the Chair.

The following Special Resolution was passed *nem. con.* :

That the Articles of the Association of the Society be altered as follows :—

(i) Article 11, by substituting

(*a*) in line 1, for the word " two " the word " three ";

(*b*) in line 4, for the words " one guinea a year " the words " two guineas a year, in accordance with Article 31 ".

(ii) Article 31, by substituting

(*a*) in line 2, for the words " two guineas or one guinea " the words " three guineas or two guineas "; and

(*b*) in lines 11 and 22, for the words " two guineas or may pay an annual subscription of one guinea " the words " three guineas or may pay an annual subscription of two guineas ".

(iii) Article 42, by substituting for the words " ten shillings and sixpence " the words " fifteen shillings ".

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24 *September* 1947

Science Meeting, at Imperial College, London S.W.7. The President, Professor G. I. Finch, was in the Chair.

It was announced that Council had elected the following to Student Membership : John Robert Balbin, Benjamin Robert Malcolm, James Ruddick.

The following were elected to Fellowship : Charles Fountain Brockelsby, Dorothy Gertrude Fisher, Rt. Hon. the Earl of Halsbury, Gilbert Henry Hinds, James Lawrence King, Roy Flavell King, Edward Lee, Francis Edmund Jury Ockenden, Kenneth Charles Worton Pedder, Edward James William Underhill.

The fifteenth Thomas Young Oration was delivered by Professor Fritz Zernike (Groningen), whose subject was " Diffraction and optical image formation ".

---

1 *October* 1947

The thirty-fourth meeting of THE COLOUR GROUP, at Imperial College, London S.W.7. Mr. J. G. Holmes was in the Chair.

A discussion was held of the International Colour-Vision Conference held at Cambridge.

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3 *October* 1947

The twenty-ninth meeting of THE OPTICAL GROUP at Imperial College, London S.W.7. Professor L. C. Martin was in the Chair.

The following papers were read and discussed :

" The optical sine condition and Herschel's condition ", by H. H. Hopkins;

" Eikonal theory and aspheric systems ", by E. Wolf;

" On the disturbance near the focus of waves of radially non-uniform amplitude ", by H. H. Hopkins.

9 *October* 1947

The second meeting of THE ACOUSTICS GROUP, at Trinity College of Music, London W.1. Mr. H. L. Kirke was in the Chair.

A discussion was held on " The place of the formant in the production of musical tone ".

---

31 *October* 1947

Science Meeting, at Imperial College, London S.W.7. The President, Professor G. I. Finch, was in the Chair.

It was announced that Council had elected the following to Student Membership : Keith Homer Barker, Joan Reith Bennett, Peter Jesse Bennett, Geoffrey Waddington Benson, Francis Geoffrey Blackler, Derek Bloomer, Victor Braxton, William Brodie, Joyce Esmé Brooks, John Robert Billson Calow, John Carruthers, Peter R. Cuthbert, Kentish B. Dawson, Joan Edwards, Tony Frederick Wallace Embleton, Henry Lewis Evans, Andrzej Folkierski, Peter Henry Harris, Peter Heggs, Anthony Leonard Hendon, Albert J. Herz, Desmond Peter Howlett, Peter Denis Lee, Francis John Lowes, Eileen Eleanor Mallett, Basil John Mason, Norman Morris, Frank Donald Morten, Raymond Geoffrey Todd Munday, Keith Roland Prosser, Brian William Purslow, Malcolm John Ravenscroft, Vera Winifred Reed, Vernon Timbrell, Peter Bernard Watt, David Edward Weston, John Willis.

The following were elected to Fellowship : Francis Cecil Chalklin, William Marshall Collier, James Brownlee Dick, Philip Gambrill Gibbs, Geoffrey Bond Harrison, John Lee Howarth, Francis Edgar Jones, Martin Ludwig Loehr (transferred from Student Membership), Ewen M'Ewen, Peter Crompton Russell, David Shoenberg, Alan Alfred Ware, James Rennie Whitehead, Geoffrey Musk Wilcox.

The following papers were read and discussed :

" Diffusion pumps : a critical discussion of existing theories ", by D. G. Avery and R. Witty;

" Electron diffraction from anthracene, with special reference to the diffuse background ", by J. Skrebowski.

---

8 *November* 1947

Science Meeting, at University College, Nottingham. The President, Professor G. I. Finch, was in the Chair.

The following papers were read and discussed :

" The adiabatic temperature changes accompanying magnetization in low and moderate fields ", by L. F. Bates and E. G. Harrison;

" The Barkhausen effect ", by H. D. Bush and R. S. Tebble;

" The variation with magnetization of Young's modulus for cobalt ", by R. E. Street;

" Thermionic emission and band overlap ", by E. P. Wohlfarth.

The following demonstrations were given :

" The magnetic sorting bridge ", by N. Underwood;

" Bitter figures ", by F. E. Neale.

---

13 *November* 1947

The third meetimg of THE ACOUSTICS GROUP, at Imperial College, London S.W.7. Mr. H. L. Kirke was in the Chair.

The following paper was read and discussed :

" Supersonic absorption of liquids ", by J. M. M. Pinkerton.

---

21 *November* 1947

Science Meeting, at the Science Museum, London S.W.7. The President, Professor G. I. Finch, was in the Chair.

It was announced that the Council had elected the following to Student Membership : John Jones Benbow, Noel Keith Bridge, Llewellyn John Elliott, Marie Ellis, Rita Barbara

Joan Francis, Reginald Leslie Heasman, Nora Evelyn Hill, Geoffrey Morgan David Bruce Jones, Eleanor Marian Leaf, Joyce Dorothy Ling, K. H. Marlow, Philip Rhodes, Barbara Ethel Sabey, John Albert Charles Samms, Dennis Frederick Shaw, Eric Thomas Smith, David Henry Trevena, Edward Victor Vernon, Stuart Astley Young.

The following were elected to Fellowship : Samuel Baxter, Israel Berz, Albert John Davies, Arthur Desmond Dobson, Ali Abd Elkerim Elrahim, Christopher Leonard Sidney Gilford, Heiz Kurt Henisch, Cornelius Graham Mayer, John Henry Mitchell, Edmund Richard Drake Seager, Narayan Chandra Sen Gupta, Harold Neville Vazeille Temperley, Joseph West.

The thirty-first Guthrie Lecture was delivered by Professor J. D. Bernal (Birkbeck College, London), whose subject was " The physical basis of life ".

---

26 *November* 1947

The thirtieth meeting of THE OPTICAL GROUP, at Northampton Polytechnic, London E.C.1. Professor L. C. Martin was in the Chair.

The following papers were read and discussed :

" Quantum fluctuations and visual acuity at low brightnesses ", by M. H. Pirenne;

" Experiments on flash visual acuity ", by D. J. Day;

" The measurement of the eye movements of a prone observer during monocular fixation ", by Mary P. Lord.

---

3 *December* 1947

The thirty-fifth meeting of THE COLOUR GROUP, at the Geological Museum, S.W.7. Mr. J. G. Holmes was in the Chair.

The following paper was read and discussed :

" Ultramarine—natural and synthetic ", by J. Pryce-Jones.

---

4 *December* 1947

Science Meeting, a joint meeting with the Institution of Electrical Engineers, at the Institution of Electrical Engineers, London W.C.2. Mr. P. Good was in the Chair.

The following paper was read and discussed :

" Speech communication under conditions of deafness or of loud noise ", by W. G. Radley.

---

4 *December* 1947

The fourth meeting of THE ACOUSTICS GROUP, at the Institution of Electrical Engineers, London W.C.2, held as a joint meeting of the Physical Society and the Institution of Electrical Engineers. (See above)

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12 *December* 1947

Joint meeting of THE OPTICAL GROUP with the Industrial Spectroscopic Group of the Institute of Physics, at Imperial College. Mr. D. M. Smith was in the Chair.

The following demonstrations were given :

" Microphotometer using cathode-ray oscilloscope ", by R. Fürth and W. D. Oliphant.

" Improvements to non-recording microphotometers by Adam Hilger Limited ", by A. C. Menzies.

The following paper was read and discussed :

" The contribution of optical scatter to the systematic error in the microphotometry of spectral lines ", by D. R. Barber.

18 *December* 1947

The eleventh meeting of THE LOW TEMPERATURE GROUP, at the Science Museum, London S.W.7. Sir Alfred Egerton was in the Chair.

A discussion entitled " Insulating materials and methods for use at low temperatures " was opened by F. E. Simon, who was followed by Ezer Griffiths, A. M. Clark and Sir Alfred Egerton.

---

19 *December* 1947

Science Meeting, at the Science Museum, London S.W.7. The President, Professor G. I. Finch, was in the Chair.

It was announced that the Council had elected the following to Student Membership : Geoffrey Martin Brown, Ian Clifford Cheeseman, John Crawford Fiddes, Ann Pauline Korndorffer, Robert Barclay Nicholls, Eric Griffith Samuel, Edgar Albert George Shaw.

The following were elected to Fellowship : Ralph Leonard Aspen, Dirk Bijl, Douglas Richard Chick, Merril Francis Distad, Brian Donovan, Clifton Darfield Ellyett, Albert Sydney Freeborn, Harold Hall Keen, Dennis John Tarran (transferred from Student Membership).

The fourth Charles Chree Address was delivered by Sir Edward Appleton, whose subject was " Geomagnetism and the ionosphere ".

The third Charles Vernon Boys Prize Address was delivered by Dr. C. F. Powell (Bristol), whose subject was his work on the development of the photographic plate technique in the investigation of fundamental particles.

---

8 *January* 1948

The fifth meeting of THE ACOUSTICS GROUP, at the National Hospital, London W.C.1. Mr. H. L. Kirke was in the Chair.

The following papers were read and discussed :

" The use of supersonic sound by animals ", by H. Hartridge;

" Tone deafness ", by D. Fry;

A film and demonstration, " Pure-tone audiometry in young children : a new technique ", were given by C. S. Hallpike and M. R. Dix.

---

9 *January* 1948

Science Meeting, at Imperial College, London S.W.7. The President, Professor G. I. Finch, was in the Chair.

It was announced that the Council had elected the following to Student Membership : Max Michael Bluhm, Geoffrey William Dolphin, Manapragada Venkata Sree Ramanchandra Murty, Natesan Ramanathan.

The following were elected to Fellowship, the last seven being transferred from Student Membership : George Emile Fishter, John Barrett Hasted, Elsie Anna Grace Knowles, Douglas Clement Spanner, Carl Henry Westcott, John Charles Willmott, Hyman Woolfe; Donald Kenneth Ashpole, Robert Guy Chambers, John Francis Irving Cole, Michael William Feast, Peter Henry Rose, Vera Mary Scamans, Ian Murray Watt.

The following papers were read and discussed :

" Shock waves in air at very high pressures ", by D. R. Davies;

" The propagation of shock waves in steel and lead ", by D. C. Pack, W. M. Evans and H. J. James.

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28 *January* 1948

The thirty-sixth meeting of THE COLOUR GROUP, at the National Gallery, London W.C.2.

A discussion was held on the Cleaned Pictures Exhibition at the National Gallery.

6 *February* 1948

Science Meeting, at Imperial College, London S.W.7. The President, Professor G. I. Finch, was in the Chair.

It was announced that the Council had elected the following to Student Membership: William Bosley, Kenneth Charles Ellis, John Ewles, Hiroshi Julian Goldsmid, Albert Leslie Hodson, Thomas Oliver Jeffries, Arthur Eric Jenkinson, Kenneth Herbert Jolliffe, Pallavar Neelakantan Krishnamoorthy, John Smith Mair, Geoffrey Edward Perry, Ruth Helen Rogers, Charmian Cecil Ruth Sinclair, David Smith, Geoffrey Stephenson, John Weston Talbot, Guy Kendal White.

The following were elected to Fellowship, the last eleven being transferred from Student Membership: Francis Kenneth Earp, Jack Ewles, Leslie Arthur Holland, Leslie Knopp, Leonard Alfred Lacey, Anthony Spence Merriweather; Deryck Russell Bell, Antony Harley Boston, James Henry Ellis, Stanley Gill, Norman Edward Goddard, Ronald Henry Hall, Denis Noel Layton, Peter Albert Michaels, David Edwin Umfreville Ridout, Colin Henry Smith, Guy Charles Tavernier.

The following papers were read and discussed:

" The efficiency of counting systems ", by M. Blackman and J. L. Michiels;

" The moving-coil galvanometer ", by N. F. Astbury.

---

11 *February* 1948

The thirty-seventh meeting of The Colour Group, at Imperial College, London S.W.7. Mr. J. G. Holmes was in the Chair.

The following paper was read and discussed:

" The classification of colour mixture phenomena ", by D. R. Duncan.

---

12 *February* 1948

The sixth meeting of The Acoustics Group, at the Science Museum, London S.W.7. Mr. H. L. Kirke was in the Chair.

A discussion was held on " The borderline of psychology, physics and music ".

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13 *February* 1948

The twelfth meeting of The Low Temperature Group. A Joint Conference with the Institution of Chemical Engineers, entitled " Developments in the Industrial Production and Use of Gaseous Oxygen ", at the Institution of Civil Engineers, Great George Street, London S.W.1.

Morning Session. Sir Charles Darwin was in the Chair.

The following papers were read and discussed:

" The use of oxygen for metallurgical heating in the iron and steel industry ", by M. W. Thring;

" The use of oxygen for town gas manufacture ", by F. J. Dent;

" The oxygen diagram ", by S. K. Bhattacharrya and D. M. Newitt.

Afternoon Session. Mr. H. W. Cremer was in the Chair.

The following papers were read and discussed:

" Theoretical aspects of air separation ", by M. Ruhemann;

" Modern gaseous oxygen production methods ", by P. M. Schuftan;

" Some notes on the economics of medium purity oxygen ", by J. R. Park.

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11 *March* 1948

The seventh meeting of The Acoustics Group, at the Royal Society of Arts, London W.C.2. Mr. H. L. Kirke was in the Chair.

A discussion was held on " Loudspeakers, with special reference to high-fidelity monitoring reproducers ".

12 *March* 1948

Science Meeting, at Imperial College, London S.W.7. The Honorary Business Secretary, Professor A. O. Rankine, was in the Chair.

It was announced that the Council had elected the following to Student Membership: Richard James Courshee, John Keith Donoghue, John Alfred Gurdler, Arthur John Heard, Albert George Hill, John Noel Hodgson, Valerie Jackson, John Compton Lawman, Geoffrey Charles Edward Olds, Jorgen Lykke Olsen, Ernst Rabinowicz, Cyril Scott, Guy Frederic Arthur de Visme; George Herbert Avery Cole, Antony Julian Croft, Stella Mayne, Guy Edward Williamson-Noble.

The following were elected to Fellowship; the last seven being transferred from Student Membership: Andre Jean Louis Bertholot, Francis Donald Boardman, Bertram Vivian Bowden, Clifford Wallace Collins, William Ronald Myers, John Robert Pikett, John Charles Simmonds, Beryl Freda Thorne, James Leslie Tuck, Putcha Venkateswarlu, Derek John Webb; Robert Bernard Clark, Robert Lester Cowley, Ronald Bertie Ide, Donald Hill Perkins, Derek Malcolm Thomas, Richard John Wakelin, Peter Robert Wyke.

The following papers were read and discussed:

" Electron trap mechanism of luminescence in sulphide and silicate phosphors ", by G. F. J. Garlick and A. F. Gibson;

" Magnetic dispersion at microwave frequencies: I. The measurement of high frequency permeability ", by G. Eichholz and G. F. Hodsman.

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19 *March* 1948

The thirty-eighth meeting of THE COLOUR GROUP, at Imperial College, London S.W.7. Dr. W. S. Stiles was in the Chair.

The following paper was read and discussed:

" The physical structure of coloured glass ", by J. G. Holmes.

The meeting was preceded by the eighth *Annual General Meeting of the Colour Group* for the presentation of the Committee's report on the work of the Group in 1947–48, the election of Officers and Committee for 1948–49 and the presentation of the Chairman's Address on " The aims and activities of the Colour Group ".

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2 *April* 1948

The thirty-first meeting of THE OPTICAL GROUP, at Imperial College, London S.W.7. Mr. B. K. Johnson was in the Chair.

The following paper was read:

" Wide aperture mirror lens systems ", by C. G. Wynne.

The following demonstrations were given:

" Method of keeping the brightness of a lamp constant without using a voltmeter ", by R. W. G. Hunt

" Mechanism for obtaining a linear density scale with polarizing light modulators ", by R. W. G. Hunt.

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5 *April* 1948

The thirteenth meeting of THE LOW TEMPERATURE GROUP, at the Chemical Society, Burlington House, Piccadilly, London W.1. First Joint Meeting with the Institute of Refrigeration. Sir Charles Darwin was in the Chair.

The following paper was read and discussed:

" Heat pump problems and industrial realizations ", by G. Eichelberg.

8 *April* 1948

Annual General Meeting of THE ACOUSTICS GROUP, at the Royal Institute of British Architects, London W.1. Mr. H. L. Kirke was in the Chair.

The minutes of the Annual General Meeting held on 19 February 1947, and the General Meeting held on 26 June 1947, were read and confirmed.

The Officers and Committee for 1948–49 were elected.

Votes of thanks were accorded to The Physical Society for the help given during the year and to the Royal Institute of British Architects for the excellent accommodation at meetings.

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8 *April* 1948

The eighth meeting of THE ACOUSTICS GROUP, at the Royal Institute of British Architects, London W.1. Mr. H. L. Kirke was in the Chair.

A discussion was held on " The use of microphones and loudspeakers in buildings and sound amplification and distribution ", opened by H. Bagenal.

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28 *April* 1948

The thirty-ninth meeting of THE COLOUR GROUP, at the Royal Photographic Society, Prince's Gate, London S.W.7. Mr. J. G. Holmes was in the Chair

A discussion was held on the Report on Colour Terminology, and the British proposals to be submitted to the Commission Internationale de l'Eclairage were reported.

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30 *April* 1948

The thirty-second meeting of THE OPTICAL GROUP, at Imperial College, London S.W.7. Professor L. C. Martin was in the Chair.

The following paper was read and discussed :

" Some further applications of multiple beam interferometry ", by S. Tolansky.

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5 *May* 1948

Annual General Meeting at the Royal Institution, Albemarle Street, London W. 1. The President, Professor G. I. Finch, was in the Chair.

The minutes of the Annual General Meeting held on 8 May 1947 were read and confirmed.

The Reports of the Council and the Honorary Treasurer and the Annual Accounts for 1947 were adopted.

The Officers and Council and the Auditors for 1948–49 were elected.

Votes of thanks were accorded to the Rector and Governing Body of Imperial College and Sir George Thomson; the Director of the Science Museum; the Managers of the Royal Institution; the Royal Commission for the Exhibition of 1851; the Officers and Members of the Committees of the Colour, Low Temperature, Optical and Acoustics Groups; to the Secretaries and to the retiring Officers and Council.

The meeting was followed by an *Extraordinary General Meeting* for the election of Professor Ernest Orlando Lawrence to Honorary Fellowship of the Society.

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5 *May* 1948

Science Meeting, at the Royal Institution, Albemarle Street, London W.1. The President, Professor G. I. Finch, was in the Chair.

It was announced that Council had elected the following to Student Membership : Robert Owen Davies, Derek Roy Holmes, Leslie George Leech, William Norman Mair, Jack Gordon Powles.

The following were elected to Fellowship, the last five being transferred from Student Membership : David Kevin Bewley, Kenneth Ellis, Alfred Graham, Thomas Burton

Grimley, William Henry Hill, John Aylward James, Samuel Lattimore, Alen De la Mare Le Claire, George Francis Longster, Arthur James Potts, Antonio Rostagni, Harold Michael Scott-Smith, Roy Samuel Sharpe, Kenneth Jack Standley, Thomas Lewis Tippell, Etienne Joseph Vassy, James Swanton Wolfe; Peter Crosby, Geoffrey Gunther Eichholz, David Rowland McCall, Peter Anthony Tanner, William Harris Thorning.

The third Holweck Discourse was delivered by Professor Y. Rocard, whose subject was " Sur les conditions d'auto-oscillation des systèmes vibrants ".

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4 *June* 1948

Science Meeting, at the Science Museum, London S.W.7. The President, Professor G. I. Finch, was in the Chair.

It was announced that the Council had elected the following to Student Membership : Gerald James Ames, Richard Edward Copland, Frank Rhoden, Patrick Walsh Seddon.

The following were elected to Fellowship, the last three being transferred from Student Membership : Oliver Martin Ashford, Frank Joseph Crow, Edgar Frank Daly, Leonard John Davies, John Hancock Davis, Allan John Ede, De Larue Everad Edmunds, John McKean Ellison, K. Abraham George, Hans H. Halban, Hans Walter Loeb, Stanislav Loria, N. K. Mundle, Asger Kjerbye Nielsen, Arthur C. Parker, John Philip Manning Prentice, Amherst Felix Thomson, Arthur Eric Jarvis Vickers; Derek Young Coomber, Peter Landsberg, Henry Thomas Richardson.

The thirty-second Guthrie Lecture was delivered by Sir George Thomson, whose subject was " The growth of crystals ".

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9 *June* 1948

The fortieth meeting of THE COLOUR GROUP, at the Lighting Service Bureau, 2 Savoy Hill, London W.C.2. Mr. J. G. Holmes was in the Chair.

The following paper was read and discussed :

" The effects of daylight and tungsten light adaptation on colour perception ", by R. W. G. Hunt.

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11 *June* 1948

The thirty-third meeting of THE OPTICAL GROUP, at Imperial College. Professor L. C. Martin was in the Chair for the first part of the meeting and Mr. T. Smith for the second.

The following papers were read and discussed :

" The computation of large numerical aperture telescope objectives ", by T. Smith;

" The boundary wave theory of image formation ", by L. C. Martin.

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14 *June* 1948

The fourteenth meeting of THE LOW TEMPERATURE GROUP, at the Chemical Society, Burlington House, Piccadilly, London W.1. Sir Charles Darwin was in the Chair.

The following paper was read and discussed :

" Expansion engines for helium liquefaction and oxygen production ", by S. C. Collins.

2 *July* 1948

Science Meeting, at Imperial College, London S.W.7. The President, Professor G. I. Finch, was in the Chair.

It was announced that Council had elected the following to Student Membership: Christopher Herbert McKoen, Nora Page, Anthony Vivian Smith de Renck, Peter Lawrence Siday.

The following were elected to Fellowship: William Jasper Clark, William Kenneth Donaldson, Charles Leslie Dyer, Sidney Walter Gogh, Wallace Russell Harper, Herbert Kitchener Hollingsworth, John Oliver Isard, Helmut Myknon, James Francis Tait, David Hardy Whiffen.

The following papers were read and discussed:

" The theory of radiation damping ", by J. Hamilton;

" An extension of Kapitza's theory of delta radiation ", by R. M. Sillitto.

14, 15, 16 *July* 1948

The ninth meeting of THE ACOUSTICS GROUP, at the Royal Institute of British Architects, London W.1. Mr. H. L. Kirke was in the Chair at the first, second and fifth sessions, Mr. H. Bagenal at the third session, and Mr. W. West at the fourth session.

The following papers were read and discussed:

" Sound transmission through partitions ", by L. L. Baranek;

" Sound transmission through partitions ", by G. H. Aston;

" Sound transmission through partitions ", by T. Vogel;

" Absorption by elastic layers ", by W. Fürrer;

" Absorption by panels at oblique incidence ", by L. Cremer;

" Transmission through party walls ", by W. A. Allen;

" Proposals for international standards for measurement " (presented on behalf of working committee), by Fritz Ingerslev, P. H. Parkin, C. W. Kosten and G. H. Aston.

" Insulation of wood floors ", by G. H. Aston;

" Impact sound ", by C. W. Kosten and J. van den Eijk;

" Insulation by discontinuous structures ", by W. A. Allen;

" Floating floors ", by H. R. Humphreys;

" Insulation measurement for footstep noises ", by P. Kipper;

" Survey of domestic noise ", by W. A. Allen;

" Sound insulation in experimental dwellings at Rotterdam ", by C. W. Kosten and J. van den Eijk;

" Similarity tests ", by C. W. Kosten;

" Noise in schools ", by J. L. Burn;

" Noise in ships ", by J. Grunenwaldt;

" Relation between the various absorption coefficients ", by J. Grunenwaldt;

" Noise in aeroplanes ", by R. Lehmann and P. Chavasse;

" Sound insulation of flats ", by P. H. Parkin and H. R. Humphreys;

" Acoustics of old theatres ", by François Canac;

" Noise meters ", by R. S. Dadson;

" Objective noise meters ", by A. J. King;

" A mains-driven objective noise meter ", by C. A. Mason;

" Objective measurement of noise ", by P. Baron;

" Certain aspects of noise measurement", by D. Maurice;

" A noise analyser ", by Lord Halsbury;

" Complex sounds and artificial noises for use in acoustic tests ", by P. Chavasse;

" Attenuation of noise in ducts ", by P. V. Bruel;

" Absorption by porous materials ", by C. W. Kosten and colleagues;

" Noise level in ducts ", by J. Grunenwaldt;

" Absorption ", by A. Schoch;

" Noise of lighting chokes ", by C. A. Mason;

" Properties of rubber ", by E. Meyer;

" Measurement and analysis of machinery noise ", by C. H. Bradbury.

23–24 *July* 1948

Science Meeting, at the Clarendon Laboratory, Oxford. The President, Professor G. I. Finch, was in the Chair for the opening session.

The following were elected to Fellowship : J. C. Jaeger, R. S. Khot, D. H. Parkinson.

The following papers were read and discussed :

" Spectroscopy at radio and radar frequencies ", by C. J. Gorter;

" The theory of line breadths in microwave and radio frequency spectra ", by J. H. Van Vleck;

" Experimental investigations of paramagnetic resonance lines ", by J. H. E. Griffiths;

" Theory of the line breadth in copper sulphate ", by M. H. L. Pryce;

" Paramagnetic resonance at low temperatures ", by B. Bleaney;

" Pressure broadening of the ammonia spectrum ", by B. Bleaney;

" Microwave absorption in gases ", by M. H. L. Pryce;

" Atmospheric absorption of millimetre waves ", by H. R. L. Lamont;

" Nuclear effects in microwave absorption in molecules ", by A. G. Hill;

" Magnetic relaxation of nuclei ", by N. Bloembergen;

" Experiments on nuclear resonance at low temperatures ", by B. V. Rollin;

" Effects of nuclear electric quadrupole moments in the R.F. spectra of solids and liquids ", by R. V. Pound;

" Measurements of relaxation times ", by L. E. Drain;

" Investigations of ferromagnetism in the microwave region ", by J. H. E. Griffiths;

" Microwave resonance absorption in ferromagnetic materials ", by C. Kittel;

" Microwave experiments with superconductors ", by A. B. Pippard;

" Vapour pressure of helium 3 ", by J. de Boer;

" The separation of helium 3 by liquid phase methods ", by J. G. Daunt;

" Experiments on helium films ", by J. B. Brown.

REPORT OF COUNCIL FOR THE YEAR ENDED 31 DECEMBER 1947

INTRODUCTORY AND GENERAL

1947 was a year of remarkable growth and activity. The increase of total membership exceeded that in any year since 1932, when the present Physical Society was formed by the amalgamation of the Optical Society and the Physical Society of London. More Science Meetings were held than in any year since 1939, and the attendances were satisfactory. A second post-war Exhibition was held with notable success in spite of the difficulties caused by the national fuel crisis and the hard winter. Two important conference reports were published. The Acoustics Group was inaugurated. These achievements were accompanied, however, by a serious financial deficit, which, though not entirely unexpected, proved to be even greater than that in 1946. Steps have been taken to bring about a considerable improvement of the financial position in 1948.

Dr. J. F. Allen resigned his membership of the Council on taking up his appointment to the Chair of Natural Philosophy at St. Andrews in September, and Dr. W. Jevons resigned the Honorary Business Secretaryship at the end of the year. The Council appointed Professor L. C. Martin and Professor A. O. Rankine, respectively, as their successors.

Dr. A. C. Stickland was appointed as Secretary-Editor, and took up her duties on 1 September.

The continued generosity of the Royal Commission for the Exhibition of 1851 in providing accommodation for the Society's headquarters at 1 Lowther Gardens is again gratefully acknowledged.

The Council again records the cordial thanks of the Society to the Rector and Governing Body of Imperial College and Professors Sir George Thomson and H. V. A. Briscoe for the great privilege of holding the Exhibition in the Physics and Inorganic Chemistry Departments of the College. For the use of Lecture Theatres for Science Meetings of the Society and its four Groups the Council thanks Sir George Thomson, the Director of the Science Museum, the Electric Lamp Manufacturers' Association, the Director of the Geological Museum, and the Councils of the Royal Photographic Society and the Royal Institute of British Architects.

MEETINGS

The Annual General Meeting was held at Imperial College, on 8 May, for the presentation and adoption of the Reports of the Council and the Treasurer and the Accounts and Balance Sheet for 1946, and for the election of the Officers and Council for 1947–48.

Three Extraordinary General Meetings were held during the year, all at Imperial College. At the first, on 28 March, a new Article 36, fixing a scale of composition fees for Life Fellowship, was adopted. At the second, on 27 June, a proposal to replace *The Proceedings of the Physical Society* by *The Magazine of Physics* was discussed but eventually withdrawn in view of opposition of Fellows. At the third, on 24 September, a special resolution to increase the basic annual subscriptions of Fellows and Student Members to three guineas and to fifteen shillings, respectively, was adopted.

Fifteen Science Meetings, in addition to those of the four specialist Groups, were held: seven in the Physics Department of Imperial College, five at the Science Museum, one at the Institution of Electrical Engineers (a joint meeting with the Institution for a discussion on speech communication under conditions of deafness and of loud noise), one in the Physics Department of the University of Manchester and one in the Physics Department of University College, Nottingham. These two provincial meetings were a continuation of the programme initiated at Birmingham in 1946, and were devoted to a discussion on the radio detection of meteors and comets and to the presentation of demonstrations and papers on magnetism, respectively.

Of the twelve ordinary meetings in London, six were given to the reading and discussion of papers, three to memorial lectures and presentations reported in later paragraphs, and one each to a discussion on the spark discharge and to a lecture-survey on multiple-beam interferometry. At the meeting on 8 May the retiring President, Professor Brunt, delivered his address on " Some aspects of the heat balance of the human body ".

EXHIBITION OF SCIENTIFIC INSTRUMENTS AND APPARATUS

The 31st Exhibition was held at Imperial College on 9–12 April. The change of date from winter to spring proved to be of great convenience to exhibitors and visitors alike. The total attendance was again high (about 8000 excluding holders of passes—members' and exhibitors'), though not so large as in 1946, and conditions were much more comfortable. The improvement was effected by the extension of the period of the Exhibition from three to four days and the controlled distribution of dated and numbered tickets for each special morning session and for each ordinary afternoon-and-evening session.

The preparation of the Catalogue was started in good time but was seriously interrupted by the national fuel crisis and electrical shut-down early in the year, and no copies were available in time for the Exhibition, but a substantial number have been sold subsequently, and others have been issued to the Export Promotion Department of the Board of Trade in view of its acknowledged value as a work of reference.

MEMORIAL LECTURES AND AWARDS

Guthrie Lecture

The 31st Guthrie Lecture was delivered at the Science Museum on 21 November by Professor J. D. Bernal, who took as his subject " The Physical Basis of Life ".

Thomas Young Oration

The 15th Oration was delivered by Professor F. Zernike at Imperial College on 24 September, the subject being " Diffraction and Optical Image Formation ".

Duddell Medal

The presentation of the 23rd (1946) Duddell Medal to Dr. K. Weissenberg, the award of which was reported last year, took place at the Science Museum on 10 January ; the medallist afterwards delivered a discourse on his work on X-ray goniometers.

The 24th (1947) Medal has been awarded to Dr. R. J. Van de Graaff for his invention and development of the high-voltage electrostatic generators that bear his name. It has been arranged that the presentation will be made by His Excellency the British Ambassador (Lord Inverchapel) at the Washington meeting of the American Physical Society on 29 April 1948.

Charles Chree Medal and Prize

The 4th (1947) Medal and Prize were presented at the Science Museum on 19 December to Sir Edward Appleton in recognition of his investigations of the ionosphere by radio methods. The medallist afterwards delivered a Charles Chree Address on " Geomagnetism and the Ionosphere ".

Charles Vernon Boys Prize

The 2nd (1946) Prize, the award of which was reported last year, was presented to Mr. R. W. Sutton at the Science Museum on 10 January.

The Council made the 3rd (1947) award of the Prize to Dr. C. F. Powell for his development of the photographic-plate technique for the investigation of high-speed fundamental particles, and the presentation took place at the Science Museum on 19 December.

Each of the prizemen delivered a discourse on his work.

Holweck Prize and Medal

The second (1947) award of the Holweck Prize of the Physical Society and Holweck Medal of the Société Française de Physique was made to Professor E. N. da C. Andrade in recognition of his investigations of the properties of the solid and liquid states. The presentation took place at a meeting of the Société in Paris on 24 May, when Professor Andrade delivered a Holweck Discourse on " L'Ecolement des Métaux ".

At his request the prize has been devoted to the purchase of books for the library of the Société Française de Physique.

PUBLICATIONS

Proceedings

Volume **59** (1947) appeared, as usual, in six two-monthly parts. Both the size of the volume and the number of copies printed were greater than for the preceding volume ; this was made possible by an increase in the official allowance of paper from 100% to 144% of the amount used in the twelve months immediately before the war. The space occupied by advertisements was slightly less than in the 1946 volume.

The consideration of the best means of adapting the *Proceedings* to meet the need, mentioned in last year's Report, for rapid publication of important papers from leading British and Continental laboratories was continued during the year. An Advisory Board has been appointed to assist in the production of the *Proceedings*, which, beginning with Volume **60** (1948), will appear, without change of title, in two volumes per annum, each volume consisting of six parts issued monthly. In order to minimize the period between the communication and the publication of a paper, the monthly issues will be as large as the paper supply permits ; the period will probably be considerably shorter for papers of less than 3500 words than for longer papers.

Reports on Progress in Physics

Good progress has been made in the preparation of Volume **11** (1946–47), which should be published early in the summer of 1948. Throughout the year there was a satisfactory demand for copies of Volume **10** (1944–45) and the reprinted Volume **4** (1937), which are now the only volumes still obtainable at the office of the Society.

Special Reports

Two important conference reports, the active preparation of which was mentioned last year, have been completed and published. The Report of the Conference (April 1946) on *Meteorological Factors in Radio-wave Propagation* appeared in June 1947, and sales of copies were increasing satisfactorily by the end of the year. The Report of the International Conference at Cambridge (July 1946) was published in December in two volumes : Volume I, *Fundamental Particles* ; Volume II, *Low Temperatures* ; the number of early requests for copies is most encouraging.

The *Report on Colour Terminology*, on the preparation of which a Sub-Committee of the Colour Group has been engaged for several years, is now in the press and should be ready early in 1948.

It will be recalled that the Society has already published, as special parts of the *Proceedings*, reports of two summer conferences held in the H. H. Wills Physical Laboratory of the University of Bristol, namely those on " The Conduction of Electricity in Solids ", in 1937, and " Internal Strains in Solids ", in 1939. In continuation of the series, the report of a third conference, on " Strength of Solids ", in July 1947, is now in active preparation as a Special Publication which should be ready early in the summer of 1948.

By arrangement with the Royal Society, the report of an International Conference on " The Emission Spectra of the Night Sky and Aurorae ", organized by the Gassiot Committee in June 1947, is to be published by the Physical Society ; it also should appear in the summer of 1948. An earlier Report of the Gassiot Committee was included in *Reports on Progress in Physics*, Volume **9** (1942–43).

REPRESENTATION ON OTHER BODIES

The following appointments of representatives in 1947 are reported :—

Board of the Institute of Physics : Dr. H. H. Hopkins, Dr. A. C. G. Menzies.

Joint Publications Committee of the Physical Society and the Institute of Physics : Professor G. I. Finch, Professor E. N. da C. Andrade, Dr. H. H. Hopkins, Dr. C. H. Collie, Dr. W. S. Stiles, Dr. W. D. Wright, Mr. E. W. H. Selwyn, Mr. J. H. Awbery, Mr. A. T. Pickles.

British Committee for Radiological Units : Professor H. T. Flint, Sir John Cockcroft, Mr. W. G. Marley, Mr. D. W. Fry, Professor E. A. Owen.

B.S.I. Committee for X-ray Diffraction Powders : Mr. C. Wainwright.

Illuminating Engineering Society, Sound-film Projector Committee : Dr. R. S. Clay.

Royal Society Committee on Accommodation for Scientific Societies: Professor G. I. Finch.
National Committee for Theoretical and Applied Mechanics: Mr. C. N. H. Lock.
Royal Society Committee on Symbols: Mr. J. H. Awbery and Professor H. T. Flint.

OBITUARY

The Council records with great regret the deaths of the following: Lord Rayleigh, *Past President*; Professors F. Paschen and Max Planck, *Honorary Fellows*; Professor E. van Aubel, Mr. R. H. Dickinson, Professor P. N. Ghosh, Major M. van S. Godfery, Mr. W. Green, Dr. W. J. H. Moll, Dr. A. Müller, Mr. G. T. Purves, Mr. A. A. Smith, Mr. A. P. Trotter and Mr. P. C. Vincent, *Fellows*; and Mr. W. B. Richardson and Mr. J. H. Strong, *Student Members*.

The Society was represented at the funeral of Lord Rayleigh at Terling Church, Essex, by Dr. W. Jevons and Professor A. O. Rankine, and at the memorial service at St. Margaret's Church, Westminster, by Professor L. C. Martin and Dr. H. Shaw.

MEMBERSHIP

As the following tables show, the notable expansion of the Society in recent years has been not merely maintained but even accelerated. The total membership showed a bigger increase than in any previous year. The number of newly elected Student Members slightly exceeded the previous highest, in 1942. The number of newly elected Fellows has only once been exceeded, in 1946; but the transfers from Student Membership were fewer than in 1945 and 1946.

Roll of Membership		Hon. Fellows	*Ex-officio* Fellows	Fellows	Student Members	Total
Totals, 31 Dec. 1946		10	4	1332	271	1617
Changes during 1947	Newly elected			126 } 159	102	
	Transferred			33 }	33 }	
	Deceased	2		12 } 22	2 } 58	
	Resigned			10 }	11 }	
	Lapsed				12 }	
	Net increase	−2		137	44	179
Totals, 31 Dec. 1947		8	4	1469	315	1796

Year	1940	1941	1942	1943	1944	1945	1946	1947
Newly elected Student Members	39	51	96	74	52	68	53	102
Transfers from Student Membership	6	13	20	22	23	52	46	33
Newly elected Fellows	20	28	57	42	56	56	139	126
Net increase in Fellowship	−25	6	57	36	55	80	165	137
Net increase in total Membership	−14	37	140	73	63	75	160	179

GROUPS

Colour Group

The Group held its Sixth Annual General Meeting in the rooms of the Royal Photographic Society on 26 March 1947, when the Committee for 1947–48 was elected, Mr. J. G. Holmes being elected as Chairman and Dr. W. D. Wright re-elected as Honorary Secretary.

During the year there were five Science Meetings, brief particulars of which are given in

the *Proceedings**. One of them, at Imperial College on 1 October, was devoted to a review and discussion of an International Conference on Colour Vision which was held at Cambridge in July 1947. Several of the papers read at meetings of the Group have been published in the *Proceedings*.†

The Report of the Sub-Committee on " Colour Terminology " is now in the press, and will shortly be published as a companion to the earlier Report on " Defective Colour Vision in Industry ".

Optical Group

At the Fifth Annual General Meeting, which was held at Imperial College on 9 May 1947, Professor L. C. Martin was elected as Chairman of the Group, Mr. E. W. H. Selwyn was re-elected as Honorary Secretary and the Committee for 1947–48 was elected.

Six Science Meetings took place in 1947, and are briefly reported in the *Proceedings**. At one of them, at Imperial College on 14 February, the work of the Réunion d'Opticiens, held in Paris in October 1946, was reviewed and discussed. Several of the papers read at the meetings of the Group have been published in the *Proceedings* ‡, and some in the *Photographic Journal*.

Low-Temperature Group

In 1947 the Group held five Science Meetings, three of which were at the Science Museum and two took the form of visits for inspection and demonstration of the work of the Clarendon Laboratory, Oxford, and Messrs. J. and E. Hall Ltd., Dartford, Kent. Brief records of the meetings are given in the *Proceedings**.

The Second Annual General Meeting of the Group was held at the Science Museum on 18 December 1947, when Sir Charles Darwin and Professor F. E. Simon were elected as Chairman and Vice-Chairman respectively, Dr. G. G. Haselden was re-elected as Honorary Secretary, and the Committee for 1948 was elected.

Acoustics Group

The Inaugural General Meeting of the Group took place at the Royal Institute of British Architects on 19 February 1947 for the consideration and adoption of a draft Constitution and for the election of Officers and Committee for 1947–48. Mr. H. L. Kirke and Dr. Alex Wood were elected as Chairman and Vice-Chairman, respectively, and Mr. W. A. Allen and Mr. A. T. Pickles as Joint Honorary Secretaries. An Inaugural Address on " The Contribution of Acoustical Science to Allied Studies " was delivered by Dr. Alex Wood.

Three Science Meetings, brief particulars of which are given in the *Proceedings**, were held during the year. The first of these was devoted to a two-day symposium on Reverberation, an account of which will appear in due course as a Special Publication of the Society.

Membership

The membership of the four Groups on 31 December 1947 was as follows :—

	Colour	Optical	Low-Temperature	Acoustics
Members of the Physical Society	112	179	44	53
Members of participating bodies	64	70	35	103
Members of subscribing firms	18	23	—	—
Other members	16	14	9	49
	210	286	88	205

* *Proceedings*, 1947, **59**, xi–xv ; 1948, **61**, vi–ix.
† *Proceedings*, 1947, **59**, 554, 560, 574, 592.
‡ *Proceedings*, 1947, **59**, 44, 155, 940.

REPORT OF THE HONORARY TREASURER FOR THE YEAR ENDED 31 DECEMBER 1947

The total expenditure (£17,504) and the total income (£15,511) were higher than in 1946 by £3590 and £3081 respectively, and show a deficit on the year of £1992 7*s.* 3*d.*

The large increase (£2949) which again occurs in the cost of publications is due partly to the rising costs of paper and printing, but mainly to the Special Reports on Meteorological Factors in Radio Wave Propagation and an International Conference on Fundamental Particles and Low Temperatures, held in Cambridge in 1946, which were produced during the year. A further appreciable increase also occurs in the cost of *Science Abstracts*.

On the income side the steady advance in receipts from subscriptions continues, and this item should record a further large increase during 1948. Sales of *Proceedings* have risen by £1124, due mainly to an increased demand by libraries.

A publications grant of £1000 from the Royal Society is gratefully acknowledged, together with a further amount of £400 as a special grant towards the cost of publishing the Gassiot Conference Report.

At the auditors' recommendation the Society's stock of publications (£6700, kindly valued by Messrs. Wm. Dawson and Sons Ltd.) has been included and has accordingly been taken direct to the General Fund on one side of the balance sheet, and shown as an asset on the other side. Next year this figure will appear on the debit side of the Income and Expenditure Account with the corresponding figure for Stock at the close of the year, thereby giving a true result of the year's operations.

In the Balance Sheet "subscriptions in advance" record a considerable increase, due to the receipt in December of a very much larger number of subscriptions for the following year, than has been the case in past years. Investments decreased by £1400, due to the sale of Lancaster Corporation Stock (£400) and 3% Savings Bonds (£1000). In addition, the sum of £900 was withdrawn during the year from the Post Office Savings Bank.

(Signed) H. SHAW,
Honorary Treasurer.

12 *February* 1948.

SPECIAL FUNDS

W. F. STANLEY TRUST FUND

	£	*s.*	*d.*		£	*s.*	*d.*
Carried to Balance Sheet	259	0	0	£300 Southern Railway Preferred Ordinary Stock	199	0	0
				£442 Southern Railway Deferred Ordinary Stock	60	0	0
	£259	0	0		£259	0	0

DUDDELL MEMORIAL TRUST FUND

Capital

	£	*s.*	*d.*		£	*s.*	*d.*
Carried to Balance Sheet	374	0	0	£400 3½% War Loan Inscribed "B" Account	374	0	0

Revenue

	£	*s.*	*d.*		£	*s.*	*d.*
Certificate	1	0	10	Balance on 31 December 1946	1	0	9
Balance carried to Balance Sheet	13	19	11	Interest on War Loan	14	0	0
	£15	0	9		£15	0	9

SPECIAL FUNDS (*contd.*)

CHARLES CHREE MEDAL AND PRIZE FUND

Capital

	£	s.	d.		£	s.
Balance carried to Balance Sheet	1866	10	0	£784 4% Funding Stock	839	0
				£1500 2½% Consols	1027	10
	1866	10	0		1866	10

Revenue

	£	s.	d.		£	s.
Prize and Certificate	132	5	10	Balance on 31 December 1946	81	3
Balance carried to Balance Sheet	17	14	8	Interest on Investments	68	17
	£150	0	6		£150	0

CHARLES VERNON BOYS PRIZE FUND

Capital

	£	s.	d.		£	s.
Balance carried to Balance Sheet	900	0	0	£1132 16*s.* 10*d.* 2½% Consols "B" Account	900	0

Revenue

	£	s.	d.		£	s.
Balance on 31 December 1946	16	10	9	Interest on Investment	28	6
Prize	26	5	0	Balance carried to Balance Sheet	15	10
Certificate	1	0	10			
	£43	16	7		£43	16

HOLWECK PRIZE FUND

Capital

	£	s.	d.		£	s.
Balance carried to Balance Sheet	675	0	0	£675 3% Defence Bonds	675	0

Revenue

	£	s.	d.		£	s.
Prize and Certificate	107	0	0	Balance on 31 December 1946	21	12
Expenses	56	6	9	Donation	3	0
Balance carried to Balance Sheet	8	13	8	Interest on Investment	22	8
				Sale of Investment	100	0
				Grant from General Fund	25	0
	£172	0	5		£172	0

ADDENBROOKE BEQUEST

Capital

	£	s.	d.		£	s.
Balance carried to Balance Sheet	337	0	0	£384 6*s.* 7*d.* 2½% Consols "D" Account	337	0

Revenue

	£	s.	d.		£	s.
Balance carried to Balance Sheet	16	13	0	Balance on 31 December 1946	6	0
				Interest on Investment	9	12
				Refund	1	0
	£16	13	0		£16	13

LIFE COMPOSITION FUND ON 31 DECEMBER 1947

	£	s.	d.
17 Fellows paid £10	170	0	0
1 Fellow paid £15	15	0	0
18 Fellows paid £21	378	0	0
1 Fellow paid £25 4*s.* 0*d.*	25	4	0
1 Fellow paid £26 5*s.* 0*d.*	26	5	0
57 Fellows paid £31 10*s.* 0*d.*	1795	10	0
1 Fellow paid £33 12*s.* 0*d.*	33	12	0
	£2443	11	0

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 DECEMBER 1947

1946 £	Expenditure	£ s. d.	£ s. d.
	To		
798	"Science Abstracts"		1140 1 6
3902	"Proceedings"	4769 9 3	
1756	"Reports on Progress in Physics"	1205 7 4	
163	Special Publications	2795 14 11	
			8770 11 6
563	Postage on Publications and General Correspondence		800 2 9
265	Agenda Papers, Notices and Expenses at Meetings		401 11 11
79	Honoraria to Special Lecturers		26 5 0
2801	Secretarial and Clerical Assistance and Office Expenses		3450 10 9
59	Furniture and Office Equipment		96 15 0
25	Grant to Holweck Prize Fund		25 0 0
12	Grant to Duddell Memorial Fund		. . .
3491	Exhibitions:—Expenses (excluding office and overhead)		2793 1 9
£13,914			£17,504 0 2

1946 £	Income	£ s. d.	£ s. d.
	By		
	Subscriptions:		
128	Entrance Fees	110 0 0	
2510	Fellows	2752 3 0	
184	Student Members	210 10 6	
26	Colour Group	31 8 0	
71	Optical Group	61 9 0	
12	Low-Temperature Group	12 5 0	
	Acoustics Group	46 12 0	
180	"Science Abstracts"	199 12 9	
			3424 0 3
1663	"Proceedings"	2787 16 5	
1148	"Reports on Progress in Physics"	1046 8 7	
339	Special Publications	578 16 4	
			4413 1 4
1062	Advertisements in "Proceedings"		997 7 6
	Cambridge Conference, contribution towards cost of Report		639 2 2
450	Grant from Royal Society		1400 0 0
4176	Exhibitions:—Receipts		4269 10 4
397	Interest on Investments		327 11 4
84	Transfer from Life Composition Fund of amounts paid by Fellows now deceased		41 0 0
1484	Balance, being excess of Expenditure over Income, carried to General Fund		1992 7 3
£13,914			£17,504 0 2

BALANCE SHEET AS ON 31 DECEMBER 1947

LIABILITIES	£ s. d.	£ s. d.
Sundry Creditors		1773 12 8
Bank Overdraft		111 5 10
***Life Compositions*:**		
As on 31 December 1946	2357 10 0	
Add Payments during year	127 1 0	
	2484 11 0	
Less Transfer to Income and Expenditure Account	41 0 0	
		2443 11 0
***Subscriptions received in advance*:**		
Members	694 8 8	
Publications	731 8 6	
		1425 17 2
SPECIAL FUNDS:		
W. F. Stanley Trust Fund	259 0 0	
Duddell Memorial Trust Fund	387 19 11	
Charles Chree Medal and Prize Fund	1884 4 8	
Charles Vernon Boys Prize Fund	884 9 9	
Holweck Prize Fund	683 13 8	
Addenbrooke Bequest	353 13 0	
		4453 1 0
GENERAL FUND:		
As on 31 December 1946	6273 11 2	
Add Value of Stock of Publications on 31 December 1947	6700 0 0	
Profit on Sale of Investments	31 17 6	
	13,005 8 8	
Less Balance of Income and Expenditure Account	1992 7 3	
		11013 1 5

We have audited the above Balance Sheet and have obtained all the information and explanations we have required. We have verified the bank balances and the Investments. In our opinion such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Society's affairs according to the best of our information and the explanations given to us and as shown by the books of the Society.

KNOX, CROPPER & Co.,
Chartered Accountants.

SPENCER HOUSE, SOUTH PLACE, E.C.2.

ASSETS	£ s. d.	£ s. d.
Investments at market value on 31 December 1939 or cost:—		
W. F. STANLEY TRUST FUND:		
£300 Southern Railway Preferred Ordinary Stock.	199 0 0	
£442 Southern Railway Deferred Ordinary Stock.	60 0 0	
		259 0 0
DUDDELL MEMORIAL FUND:		
£400 3½% War Stock		374 0 0
CHARLES CHREE MEDAL AND PRIZE FUND:		
£784 4% Funding Stock	839 0 0	
£1500 2½% Consols	1027 10 0	
		1866 10 0
CHARLES VERNON BOYS PRIZE FUND:		
£1132 16*s.* 10*d.* 2½% Consols		900 0 0
HOLWECK PRIZE FUND:		
£675 3% Defence Bonds		675 0 0
ADDENBROOKE BEQUEST:		
£384 6*s.* 7*d.* 2½% Consols		337 0 0
GENERAL FUND:		
£2100 2½% Consols	1437 10 0	
£1750 3½% War Stock	1636 0 0	
£500 4% Funding Stock	535 0 0	
£399 L.M.S. 4% Debentures	355 0 0	
£1000 L.M.S. 4% Preference Stock	595 0 0	
£500 L.N.E.R. 4% Debentures	412 0 0	
£150 S.R. 5% Debentures	171 0 0	
£2200 3% Defence Bonds	2200 0 0	
		7341 10 0
		11,753 0 0*
* Market value on 31 December 1947: £13,106.		
Dividends due on Investments		95 7 3
Inland Revenue—Income Tax recoverable for 1946		43 12 8
Subscriptions due		77 1 8
Sundry Debtors		1050 6 3
Stock of Paper and Binding Material	675 7 6	
Publications	6700 0 0	
		7375 7 6
32nd Exhibition (1948):—*Expenditure to date*		663 13 3
Cash in Post Office Savings Bank Account	93 9 5	
Cash in hand	68 11 1	
		162 0 6